

ROBERTS (J.B.)

ACUTE BRONCHOCELE

WITH

CARDIAC HYPERTROPHY

OCCURRING DURING

PREGNANCY,

AND PRODUCING

FATAL DYSPNŒA.

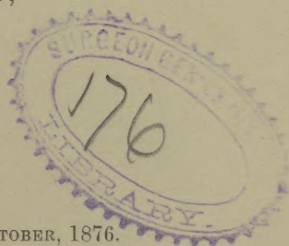
BY

JOHN B. ROBERTS, M.D.,

RESIDENT SURGEON, PENNSYLVANIA HOSPITAL.

EXTRACTED FROM THE

AMERICAN JOURNAL OF THE MEDICAL SCIENCES, FOR OCTOBER, 1876.



PHILADELPHIA:

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WE are accustomed to look upon bronchocele as an affection of importance chiefly on account of the deformity of the neck, and hardly realize that in certain cases it may cause death with great rapidity by asphyxia, the result of direct pressure on the trachea, or of interference with the nervous element of respiration, by the mechanical involvement of the important nerves traversing the neck. A case in point was recently admitted into Dr. R. J. Levis's ward in the Pennsylvania Hospital.

Mary C., aged 27 years, Irish, and in about the sixth month of uterogestation, was admitted on December 30th, 1875, on account of violent and threatening paroxysms of dyspnœa. Four months previously, when she was about two months pregnant, there had been noticed a slight prominence of her eyeballs, which was followed by a small swelling of the anterior part of her neck, to the right of the median line. About the same time her attention was attracted to palpitation of the heart when taking active exercise. As she progressed in her pregnancy the cervical tumour continued to increase in bulk, and about two weeks before admission, at the time of quickening, she was attacked with frequent paroxysms of dyspnœa that almost reached the point of asphyxia.

The examination on admission showed slight prominence of the eyes, and an enlargement of the thyroid gland, which was especially marked on the right side, where the tumour was about the size of a large egg. The first sound of the heart seemed rather heavy, but there was no murmur. The patient's respiration was laboured, and three or four times daily the dyspnœa became so aggravated that the woman was almost asphyxiated. During these paroxysms, which lasted three or four hours, she presented a picture of the utmost distress; she screamed outright, threw her arms about, and struggled for breath, while the turgid veins of the neck, the streams of perspiration running down her cheeks, and the lividity of her countenance added to the horror of the spectacle. The paroxysms not unfrequently terminated by vomiting, and during them she sometimes became delirious.

Laryngoscopic examination, made by Dr. J. Solis Cohen, showed tumefaction of the arytenoid cartilages, and revealed that the glottis was not œdematous, but that, although vibrating spasmodically, it did not

close as much as normal. There was, however, particularly on the *left* side, bulging inward of the tracheal wall.

It was decided to undertake some operation, and accordingly laryngotomy was performed, as tracheotomy was not possible on account of the enlarged thyroid extending upwards over the trachea. Although this was done, and although the operator could force his finger into the wind-pipe, thus dispelling the idea of stenosis of the tracheal tube, yet the patient's respiration was still much embarrassed. She did not have a recurrence of the violent paroxysms, but continued to breathe with difficulty, and finally died, January 1st, 1876, twenty-nine hours after the operation, or about fifty-five hours after admission into the hospital.

The *autopsy* was made about 16 hours after death. The lungs were not adherent, and presented evidences of slight congestion. The pericardium contained a large amount of effusion; the heart was greatly hypertrophied, weighing, without the contained clots, $20\frac{1}{2}$ ounces, but there was no valvular insufficiency. The liver was normal. In the situation of the spleen there was found a small, hard, granular body, rather triangular in shape, and with what appeared to be a hilum. Its weight was $54\frac{1}{2}$ grains. The supra-renal capsules were normal in size, but were somewhat hardened, and had indurated masses on the surface. The kidneys were of the natural size, and the capsule peeled off normally, but they were lobulated on the surface, and were somewhat congested.

The tumour of the neck was found to be the thyroid gland, which was hypertrophied and surrounded the trachea from its junction with the œsophagus on one side to a similar point on the other. The tumour at the sides reached as high as the top of the larynx, and with the inclosed trachea measured $8\frac{1}{2}$ inches in circumference; the enlargement on the left side was about the same as on the right, though before death the tumour was more prominent on the right side. The isthmus was hypertrophied and bulged forwards between the ribbon muscles of the neck. The tracheal wall was slightly pushed inward by the tumour on the left side. The incision made in the operation was about one inch long, and was found to extend obliquely through the left side of the thyroid down to the cricoid cartilage. Its upper part divided the two left vocal chords, and it extended beneath the enlarged thyroid isthmus. The tumour was a simple hypertrophy of the thyroid gland, and contained no cysts. The recurrent laryngeal nerves ran beneath the gland along the sides of the trachea, and the tumour had to be dissected up to expose them. The left nerve was smaller than the right. The bronchial glands also were enlarged. The fundus of the gravid uterus was about $2\frac{1}{2}$ inches above the umbilicus. The fœtus was not removed.

This case is interesting because it is unusual for bronchocele to produce fatal dyspnœa, and this occurrence in connection with *acute* bronchocele is still more uncommon; while the combination of pregnancy and acute bronchocele followed by asphyxia is one of the rarest conditions found in medical or surgical practice.

Bronchoceles attain great bulk, even, as in a case mentioned by Alibert, reaching to the thighs, but they seldom cause pressure on the structures of the neck sufficient to endanger life. This complication is perhaps more frequent than supposed, for within a year there have been in the Pennsylvania Hospital two cases somewhat similar to the present, where

suffocation resulted from the presence of bronchocele. The first case was under the care of Dr. T. G. Morton, and the second under that of Dr. J. J. Kirkbride.

The former of these, Joseph S., aged 40, was a native of England, married, and by trade a cotton carder; had had a tumour in the anterior part of his neck for 18 months, which, however, had grown with great rapidity during the last three months, and had caused for four weeks previous to admission dyspnœa of a severe character. He said that his brother had some kind of a tumour in his neck, but the patient could not describe its character. On Nov. 18, 1874, when the man was admitted, the neck from the centre of one sterno-mastoid muscle to that of the other measured $6\frac{1}{2}$ inches; the vertical measurement of the tumour was 4 inches. The tumour was freely movable and showed the presence of a cyst by fluctuation. Under treatment there was improvement, and on December 7th, 1874, the tumour measured 6 inches transversely, and $3\frac{3}{4}$ inches vertically; and there was no longer any interference with respiration. The size of the tumour, however, was not constant, but, without any relation to the treatment, increased and decreased irregularly. On Feb. 18th, 1875, the tumour had increased very much, and greatly interfered with respiration and deglutition; so much so that he could not lie down, and was scarcely able to take nourishment. He died in the afternoon of this day exhausted. The post-mortem examination of the tumour showed on the left side an enlargement of the thyroid gland, extending from the œsophagus to the middle line of the trachea, and from the level of the middle of the thyroid cartilage to within half an inch of the origin of the great vessels from the aorta. The upper portion of this tumour was a cyst the transverse circumference of which measured $7\frac{1}{2}$ inches; the internal surface of this cyst was lined with hard nodules. Below the cyst, and lying in the space between the left carotid and the innominate and right carotid, and to the left of the trachea, which was pushed to the right by the tumour, was a fibrous mass $1\frac{1}{2}$ inches in diameter. The thyroid isthmus was not much hypertrophied; the right lobe was $1\frac{1}{4}$ inches in transverse diameter. The trachea was pushed to right, and about one inch below the larynx its calibre was reduced about one-half by the lateral pressure.

The second case was not a cystic bronchocele, and was much more acute in its progress.

William C., aged eighteen years, a painter, unmarried, born in Ireland, was admitted on July 5, 1875. He stated that he had observed, about the middle of June, that he buttoned his collars with difficulty. The following day his throat had increased in size so much that he could not button his shirt (?) The swelling rapidly increased until he had difficulty in breathing, when he sought treatment in the hospital. At the time of admission, the tumour, which was evidently thyroïdal, was the size of a coconut, and his respiration was a good deal embarrassed, though he could eat his dinner, and afterwards walked in the yard. There was no cardiac murmur detected. In the afternoon a violent paroxysm of dyspnœa occurred, which soon abated; but he grew worse, and his laboured respiration could be heard for a long distance through the house. The attacks of dyspnœa became more and more frequent, and tracheotomy was suggested, but deemed useless. The patient died cyanosed the morning after admission. The specimen shows enlargement of both lobes and of the

isthmus which completely surround the trachea. The tumour is very soft and lobulated; on the sides it extends upwards to the base of the arytenoid cartilages, while the isthmus reaches to within a quarter of an inch of the notch in the thyroid cartilage. Between the isthmus and the highest point at each side there is a notch in the tumour which leaves exposed the surface of the thyroid cartilage. Both lobes are about equally enlarged. The circumference from the œsophagus on one side around to the other, including the trachea in the mass, is now (seven months after death), $6\frac{3}{4}$ inches. It is said that, when removed, the tumour weighed four pounds. The specimen has been kept in chloral. The trachea was not laid open.

The first of these cases is an example of the rapid development which may occur in old bronchoceles; while the latter shows with what extraordinary rapidity the thyroid gland may increase and cause death in a few weeks by asphyxia. The second patient noticed that his collar was too tight—a point, by the way, likely to be noticed at the very incipency of the disease—in the middle of June, and died on the 6th of July.

In looking over the literature of the subject, I have found, exclusive of these Pennsylvania Hospital cases, but five cases mentioned where death has occurred, or would have occurred except for operative interference, on account of obstruction to respiration, within a year after the beginning of the disease; and only one case where starvation resulted as a sequence of pressure upon the œsophagus.¹ Although this is a small percentage when we reflect on the prevalence of goitre in certain districts, yet it “points to the propriety of regarding any acute enlargement of this gland in young people with more anxiety than we are accustomed to do.”² As to the fact of bronchocele being acute, there are among the cases collected, including Levis’s, six which did not date beyond five months; and I have found several recorded where there was a rapid development of old tumours leading to asphyxia. Below is a schedule of the acute cases not over one year in developing.

¹ Watson, *Practice of Physic*, p. 424.

² Risdon Bennett, *Intra-thoracic Growths*, p. 169.

	Sex.	Age.	Date of growth.	Size of tumour.	Condition of heart.	Operation.	Result.	Autopsy.	Remarks.
Davies ¹	M.	16	1 yr.	.....	.....	None	Death	Thyroid, thymus, and bronchial glands enlarged	Rapid increase for four months.
Risdon Bennett ²	M.	19	3 mos.	When removed as large as two fists	Normal	Tracheotomy	Death	Trachea compressed and twisted to the left	Female catheter used, but could not pass the obstruction. Simple hypertrophy. No exophthalmos
Trousseau ³	M.	14½	3 mos.	.....	.....	Phlebotomy; ice locally; digitalis	Cured	.....	Tracheotomy was determined upon if he was not relieved by these less severe measures.
Caird ⁴	M.	16	3 wks	.....	Normal	Tracheotomy	Cured	.....	India rubber catheter introduced. Tumour disappeared in one week, there having occurred meanwhile secondary hemorrhage.
Kirkbride ⁵	M.	18	About 3 wks	6½ inches in circumference	Normal	None	Death	Trachea compressed	Tumour weighed 4 lbs. (?)
A. Weil ⁶	F.	46	5 mos.	Man's fist	Normal	None	Death	Right recurrent nerve flattened and atrophied. Left unaltered. Vagus & sympathetic normal. Trachea compressed & perforated.	Had aphonia. Paralysis of right vocal chord seen by the laryngoscope.
Levis ⁷	F.	27	4 mos.	8½ inches including the trachea	Hypertrophy	Laryngotomy	Death	Trachea slightly compressed. Recurrent laryngeal nerves were involved in the tumor.	About six months pregnant. Dyspnoea began about time of quickening.

There are reported⁸ two fatal cases where the disease was connected with pregnancy, in both of which, as in the present, the bronchocele was developed during the first gestation and was followed finally by asphyxia. M. Guillot, in speaking of his own cases, says that Paul Dubois⁹ saw a similar case, but he gives no particulars. Guillot's cases differ from Levis's case in that the fatal termination did not occur so soon. The following is a succinct account of the course of the disease in both his cases.

In the first case the patient when thirty years of age became pregnant, and during gestation, which was her first, observed an enlargement of the thyroid gland. This enlargement increased during her second pregnancy, but seems to have caused no interference with respiration until twenty-four and a half years later, when the tumour measured nearly three inches in diameter. The patient,

¹ Holmes, System of Surgery, v. 295.

² Risdon Bennett, Intra-thoracic Tumours, p. 167.

³ Clinique Médicale de l'Hôtel-Dieu, ii. 543.

⁴ Lancet, January 29, 1876.

⁶ Deutsches Archiv für Klinische Medecin, xiv. p. 90.

⁸ Archives Générales de Médecine, vol. xvi. p. 513.

⁹ This case is also mentioned by Grisolle, Pathologie Interne, ii. 213.

⁵ This article.

⁷ This article.

by that time an old woman, had paroxysms of dyspnoea, palpitation, vomiting and facial neuralgia. Laryngotomy gave immediate relief, but she died two days subsequently.

In the second case the fatal issue was not delayed so long. The woman, who was born in Paris, when twenty-five years old noticed after her first pregnancy that there was some increase in the size of her neck. There was no further increase, however, and two years subsequently she became pregnant again. After this the tumour increased in bulk until she came under M. Guillot's observation nineteen months later. At this time, nearly four years after the first indication of bronchocele, the tumour had a circumference of nearly twelve inches, and extended from the thyroid cartilage to the sternum. The patient suffered from frontal neuralgia, paroxysmal dyspnoea, palpitation and thoracic pain. She died asphyxiated without any operation having been performed. At the autopsy the thyroid body was as large as a man's brain, and compressed the pneumogastric nerves and the carotid arteries against the spinal column. The trachea was flattened throughout its entire length until the antero-posterior diameter was only about one-tenth of an inch while the lateral was nearly four-fifths of an inch. The condition seemed to be simple hypertrophy of the thyroid gland depending upon an increase of fibrous tissue.

These two cases differ from the one under consideration because the bronchocele was much slower in development. In Levis's case the growth had been noticed only four months before death, while in the first case it had existed twenty-four or twenty-six years, and in the second case about four years. Moreover, in the last two cases the patients passed safely through gestation and parturition, but in the first death took place about six months after impregnation. In Guillot's report it is not stated at what months of gestation the first symptoms of bronchocele were perceived; but in this instance the exophthalmos and indeed the tumour itself were noticed about the second month, and the dyspnoea became marked at the time of quickening.

In reviewing these three cases we must ask: Had the pregnancy of the patient any part in causing or accelerating the growth of the bronchocele, or was it merely an accidental complication? That there is some obscure sympathetic link between the uterus and the thyroid gland was recognized by early writers. Andreas Pasta thought that women were more subject to certain forms of bronchocele than men, because a debility is induced in the gland in consequence of the vomiting of pregnancy.¹ Lalouette imagined that during the throes of labour air was forced from the trachea into the cellular tissue of the gland, causing an aerial tumour.² These crude opinions show that the subject was a matter of discussion years ago. In Cooper's *Surgical Dictionary*, under Bronchocele, it is stated that "Women are far more subject to the disease than men, and the tumour is observed to be particularly apt to increase rapidly during confinement in childbed."³ Holmes Coote mentions a case where hypertrophy of the thyroid occurred and became permanent after an abrupt cessation of the menses.⁴ Another writer says, "I see almost every year, in the wards of

¹ Barton on Goitre, p. 47.

² Barton, p. 47.

³ Vol. ii. 733.

⁴ Holmes, *System of Surgery*, v. 289.

the Necker Hospital, women in whom the thyroid body is enlarged during the period of pregnancy."¹ These statements show that the association of pregnancy and thyroid enlargement occurs too frequently to be a mere coincidence.² Dr. Frank Woodbury, of Philadelphia, has lately had a case under his care where the goitre was noticed soon after a second pregnancy. It has increased gradually, but the patient "made the voluntary statement that the swelling looks much larger during pregnancy than at other times, and grows much faster while she is in this condition."

By some authors the thyroid gland is supposed to be a reservoir to prevent sudden congestion of the brain; and some have also advanced the theory that the enlarged gland during pregnancy presses on the carotids and thus prevents cerebral congestion which is rendered possible by the impeding of venous return.³

The first theory seems much more tenable than the last, for there are undoubtedly sudden and transitory enlargements of the thyroid gland occurring during violent exertion which can only be accounted for on the supposition of temporary engorgement.⁴ As to the other theory, it is probable that any tumour exerting pressure on the carotids would also compress the jugular veins, and thereby tend to increase cerebral congestion.

M. Guilloit thinks the fibrous bronchocele, found in his case where an autopsy was made, was produced in a manner analogous to the enlargement of the uterine wall and the mammary gland that takes place during gestation owing to an increase of fibrous tissue; and that it was "one of the consequences and one of the evidences of the activity of fibrous elements impressed on the system" at that time.⁵ This view of the matter, although hardly explaining it, still seems to be a very reasonable hypothesis to advance as a partial solution of the intimate connection certainly existing between the condition of pregnancy and bronchocele.

M. Poincaré, having observed the great richness of the thyroid gland in nervous filaments, thinks that this great nerve supply accounts in some measure for the close relationship between the organs of generation and the thyroid gland.⁶

What was the cause of the dyspnoea in this case of acute bronchocele? Was it caused by narrowing of the trachea? Was it cardiac dyspnoea resulting from the pathological condition of the heart in a case of Graves' disease? Was it produced by the tumour compressing the nerves supplying the respiratory muscles? or was it a reflex phenomenon dependent upon uterine irritation?

Tracheo-stenosis might undoubtedly be the cause of the difficult respira-

¹ Archives Générales de Médecine, Nov. 1860, p. 514.

² Holmes, System of Surgery, v. 295.

³ N. Y. Medical Journal, 1875, pp. 450, 451.

⁴ Id. 453.

⁵ Archives Générales de Médecine, Nov. 1860.

⁶ Lancet, April 22d, 1876, quoted from Robin's Journal de l'Anatomie, 1875.

tion, but this is more apt to be the case when the isthmus of the thyroid gland especially is hypertrophied, or when the bronchocele is post-sternal and consequently cannot project forwards as it increases. In this case, however, Dr. Levis after the laryngotomy inserted his finger into the trachea and could find no narrowing of the tube; and the autopsy showed that there was only very slight pushing in of the wall on the left side. Hence the urgent dyspnœa could not depend wholly on tracheo-stenosis, though we must admit that the asthmatic paroxysms did not recur after laryngotomy was performed; but neither did the patient react from her condition of partial asphyxia as she ought certainly to have done after the insertion of the tube, had the dyspnœa been caused by tracheo-stenosis above the point of operation, or by laryngeal trouble. The fact that the dyspnœa was paroxysmal would, I think, dissipate the idea that it was caused by tumefaction of the mucous membrane from intercurrent tracheitis or laryngitis.

The coexistence of palpitation, cardiac hypertrophy, and exophthalmos with the goitre, certainly places the case under the head of Graves' disease (exophthalmic goitre), but as the exophthalmos was slight, and the palpitation a symptom only mentioned by the patient after questioning, it seems to me improbable that the violent suffocative attacks were cardiac in their causation. And, moreover, paroxysms of urgent dyspnœa are not mentioned by the authorities as being apt to accompany uncomplicated hypertrophy of the heart or to attend exophthalmic goitre except after the bronchocele has become large. It therefore seems that the dyspnœa must be attributed to pressure upon the nerves of the neck or to reflex uterine irritation.

As stated in the post-mortem record the recurrent laryngeal nerves on both sides were found lying between the trachea and the tumour, and were undoubtedly pressed upon by the enlarged gland; this was doubtless the cause of the harsh tone of the patient's voice.¹ The sympathetic, pneumogastric, and phrenic nerves were subjected of course to the general pressure caused by the tenseness of the cervical tissues, which could not but be great, as the tumour was so rapid in its growth, and was restricted by the dense overlying fascia.

A writer,² speaking of goitre asthma, says:—

"On this point Stoerck's ideas are interesting. He says it does not come from pressure on the trachea, but on the pneumogastric or recurrent nerves, giving *sub-paresis* of the lateral crico-arytenoid muscles. Phonation is sometimes laboured, and sometimes there is noisy inspiration. There is nothing to see with the laryngoscope. The dyspnœa is paradoxical, for the glottis is abnormally *open*."

This corresponds exactly with Dr. Levis's case, for the examination with the laryngeal mirror showed the rima glottidis abnormally patent, and the

¹ See Case 6 in preceding table.

² N. Y. Medical Journal, 1875, p. 457.

dissection post-mortem proved that there was pressure on both recurrent laryngeal nerves. The same writer goes on to say:—

“It (goitre asthma) may come from nervous influence, or from mucus getting past the glottis, but more probably from the glottis not closing, and thus allowing the bronchial muscles to force the air on into the lungs beyond, since it is relieved by stimulating the muscles to close the glottis.”

In the present case it was thought that the diaphragm did not act freely, which would add to the theory of pressure on the phrenic nerve; but in a pregnant woman it would be difficult to determine that there was diaphragmatic paralysis; and, moreover, the phrenic nerve lies nearly three-quarters of an inch from the edge of the normal thyroid gland, and it would require great hypertrophy of the latter to bring direct pressure upon it.

Regarding the cause of the dyspnœa, another opinion might be entertained, viz., that it was not connected with the bronchocele at all, but was dependent on uterine irritation, for during gestation the respiration is at times embarrassed, and severe dyspnœa occurs.¹ Still another instance of reflex symptoms of this character is seen in the asthma occurring in connection with uterine tumours.² This view, however, is hardly tenable in the face of the number of cases of goitre given where fatal dyspnœa occurred in women who were not pregnant, and in men.

It must be acknowledged, then, that although the uterine condition was an important agent in regard to the development of the tumour, and perhaps aided in the production of the respiratory distress, yet the great factor in all probability was nerve compression, resulting from the rapid growth of the goitre under the cervical fascia.

The most important question in regard to the whole subject, however, is yet to be discussed, and that is: The line of treatment to be pursued in cases of acute bronchocele producing great dyspnœa.

It has been mentioned that tracheo-stenosis is most apt to be produced when the thyroid tumour is situated behind the sternum, and cannot bulge forwards. The same effect is produced in a less degree by the tense cervical fascia, for if the tumour develops with great rapidity the cervical fascia does not distend before it, and as a consequence pressure must be exerted on the parts which are in the vicinity, and either tracheo-stenosis or nerve pressure is induced. Hence in certain cases the dyspnœa is relieved by making a free incision through the cervical fascia, and permitting the tumour to protrude; and if the urgent symptoms are caused by sudden congestive increase of the glandular tumour, the patient may thus be rescued from impending death. This operation was successfully adopted by Dr. Levis in a case under his care in the Philadelphia Hospital many years ago, in which the almost asphyxiated patient was

¹ Tyler Smith, *Manual of Obstetrics*, p. 121.

² *The Practitioner*, December, 1875.

relieved by an incision extending from the larynx to the sternum. There are a number of other cases recorded¹ where recovery followed this operation. Mr. Cusack split the fascia of the neck, but it was done so late that respiration had already ceased; he immediately opened the larynx and introduced a flexible catheter, through which he blew, re-established respiration, and saved his patient. He thought afterwards that, if the fascia had been split sooner, there might not have been any need for laryngotomy.²

If the dyspnœa be dependent upon partial occlusion of the trachea, tracheotomy may be of service, especially if a long tube or a flexible catheter be introduced in order to pass below the point of constriction.³ The hypertrophied and vascular thyroid gland generally requires the incision to be made high up in the trachea or in the larynx, and therefore a long tube is required. If nerve pressure be the cause of the symptoms, tracheotomy or laryngotomy can be of no service, as was exemplified in Dr. Levis's case, where there was, to be sure, a slight amelioration of the dyspnœa, due probably to the incision made through the fascia in reaching the trachea, but no marked relief. Tracheotomy was indicated by the bulging inward of the trachea, as seen by the laryngeal mirror, and the extreme urgency of the symptoms, but was, of course useless.

Ligation of the thyroid arteries has been done in suffocative bronchocele, but its value varies with the portion of the gland involved, and it is only available in certain cases.⁴ It would not be available in sudden emergencies.

The most radical procedure is certainly the complete removal of the enlarged gland, but this is attended with great danger on account of the important vascular and nervous structures of the neck which are in proximity to the thyroid gland. Nevertheless there have been a number of successful cases reported, especially since Greene's brilliant results.⁵

Another procedure recommended is the excision of the isthmus, thus preventing the constriction of the trachea which occurs as a result of the encircling of that tube by the enlarging gland.⁶

If the dyspnœa in the case before us was caused, as it seems to have been, by pressure on the recurrent laryngeal nerves, none of these operations would have been of much avail, for the nerve was compressed by the posterior portion of the lateral lobes of the gland. It is possible,

¹ *Med. Times and Gazette*, May 27, 1871. *Idem.*, Aug. 3, 1872.

² *Lancet*, Jan. 1862.

³ *Lancet*, Aug. 3, 1861 (2 cases).

⁴ *N. Y. Medical Journal*, 1875, p. 465.

⁵ *N. Y. Med. Record*, 1866-67, p. 443. *Amer. Journal Med. Sci.*, 1871, p. 80. *Idem.*, 1873, p. 280. *London Medical Record*, April 9, 1873. *Phila. Med. Times*, April 15, 1871, etc. etc.

⁶ *Lancet*, Jan. 23, 1875. *N. Y. Med. Record*, Jan. 1, 1876. *Braithwaite's Retrospect*, lxxi. p. 175.

perhaps, that removing the anterior portion of the tumour might have relieved the general tension sufficiently to have allowed respiration, and thus have preserved the patient's life.

Any other strictly surgical treatment then would have been, as was tracheotomy, of little avail in this case unless it had been instituted at the very beginning of the disease, or unless the whole tumour had been dissected out regardless of hemorrhage and the dangers of wounding important nerves. At the stage in which the patient was admitted, it is evident, from post-mortem examination, that no remedial surgical procedure would have been feasible.

Would any form of medical treatment have been of use? Dr. Levis ordered that the patient should be bled very freely if she became so cyanosed as to point to immediate asphyxia; and, in order to make a very rapid flow of blood, the temporal arteries were to be cut rather than the veins of the arm. This was ordered in order to lessen the internal congestion, relieve the engorged lungs, and so secondarily to diminish the dyspnœa. Arteriotomy was not done, however, and when the consultation was called it was decided to open the trachea. Phlebotomy in a good many cases of bronchoceleic asthma has been followed by relief of the symptoms; and a case of Graves' disease is related by Trousseau where a perfect cure followed venesection.¹ In addition, however, ice was applied to the neck, and digitalis administered internally. Before this triple treatment was begun, tracheotomy was indicated by the extreme oppression and the imminent asphyxia, and it had been decided in consultation to open the trachea if a rapid subsidence of symptoms did not occur. In three days from the time the treatment was instituted, the boy could go up and down stairs without oppression, and finally the cardiac palpitation entirely, and the exophthalmos and the goitre almost entirely, disappeared. It would seem in Trousseau's case that the venesection relieved the distended thyroid gland, and that the subsequent continuous employment of tincture of digitalis quieted the heart's action and prevented a second congestive enlargement of the gland. It is doubtful, however, whether the same result would have occurred in the case under discussion, in which the hypertrophy was fibrous in character.

The last question to be considered is whether the production of abortion would have been of service in averting the fatal termination of this case. At the time the patient was admitted the tumour had acquired the bulk which was sufficient to cause fatal dyspnœa; and therefore it would have been useless to have emptied the uterus. That operation would have been attended with an increase of nervous excitement, and the accompanying tenesmic efforts would have added to the difficult respiration.

In the second case mentioned by Guillot the bronchocele ceased en-

¹ Clinique Médicale de l'Hôtel-Dieu, ii. 544. See Case 3 in table.

larging after parturition, and did not again become active for a year and a half, when the patient became pregnant a second time. This would point to the propriety of producing abortion in the early stage of gestation as soon as the bronchocelic swelling became marked ; but in both of his cases the enlargement continued to increase, even after the delivery of the second child. In regard to this procedure then it may be said, that, owing to the unmistakable causation of gestation in producing bronchocеле, it would be the safest plan to induce premature labour in all cases where there is presented a marked swelling of the neck : although the goitre may not be dangerous in the first pregnancy, yet there is established a source of danger which is liable to become imminent in succeeding pregnancies.

From the few cases recorded it is impossible to deduce accurate conclusions, but it is readily seen that strict surveillance of all such cases is of paramount importance.

From the similar functions of the thyroid gland and spleen as blood glands, so called, there may be some supplementary relation in regard to the size of these organs ; and it may be asked whether the small body found in the position of the spleen was really a spleen of miniature proportions ; and if so, whether it was so small because the thyroid body had so much increased in size. This question, however, cannot now be discussed.

